ABSTRACT OF THE DISCLOSURE

This invention relates to an optical transmission system which allows high quality transmission of signal light where a plurality of signal channels are multiplexed, and has a configuration that is particularly suitable for CWDM optical transmission. In the optical transmission system, the plurality of signal channels propagating through the optical fiber transmission line are demultiplexed into a signal channel group in the first wavelength band Λ_1 and a signal channel group in the second wavelength band Λ_2. Then, each signal channel in the second wavelength band Λ_2 where the absolute value of chromatic dispersion is large is dispersion-compensated. When the bit rate is B (Gb/s) at a specific wavelength in the second wavelength band Λ_2 where the total chromatic dispersion in the optical fiber transmission line and the dispersion compensator is highest, the chromatic dispersion value at this specific wavelength is set to be grater than 0 (ps/nm) but $7500/B^2$ (ps/nm) or less, and is set such that the loss in the second wavelength band Λ_2 is lower than the highest loss in the first wavelength band Λ_1.